

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. **(Currently Amended)** A method of measuring transmission quality of multimedia data, comprising the steps of:

(a) a transmitter transmitting multimedia data through a forward channel to a receiver ~~in such a way that the transmitter can estimate the multimedia data played at the receiver using information on errors occurring during the multimedia data transmission;~~

(b) ~~the receiver receiving the multimedia data from the transmitter and transmitting, to the transmitter~~ receiving, through a return channel, ~~the information on~~ transmission error information on errors occurring during the multimedia data transmission to the receiver;

(c) estimating, at the transmitter, ~~the multimedia~~ multimedia data ~~played at~~ received by the receiver using the ~~received error information~~ transmission error information received from the receiver and the transmitted multimedia data, and

(d) measuring, at the transmitter, ~~the transmission~~ a transmission quality of the multimedia data received by the receiver by comparing the estimated received multimedia data ~~received data~~ with reference data.

2. **(Currently Amended)** The method according to claim 1, wherein the step (b) is performed ~~in such a way as to transmit the error information to the transmitter through the return channel~~ only when a transmission error of the transmitted multimedia data is detected.

3. **(Currently Amended)** The method according to claim 1, ~~wherein the step (b) comprises the step of~~ further comprising compensating errors by applying an error concealment technique to the received multimedia data.

4. **(Currently Amended)** The method according to claim 3, ~~wherein the step (b) is performed in such a way as to transmit information on the employed~~ further comprising the transmitter receiving error concealment technique ~~and error information to the transmitter through the return channel.~~

5-6. (Canceled).

7. (Currently Amended) The method according to claim 1, wherein in step (d), the reference data is obtained by decoding the transmitted multimedia data.

8. (Canceled).

9. (Currently Amended) The method according to claim 1, wherein ~~the step (d) is performed in such a way as to estimate~~measuring the transmission quality ~~by using~~uses any one of a full-reference method, a reduced-reference method, and a no reference method.

10. (Currently Amended) The method according to claim 1, further ~~comprising~~comprises the step

~~of, after the step (d):~~

(e) selectively maintaining or changing a transmission state of the multimedia data through the channel ~~depending on the evaluation result of~~after measuring the transmission quality.

11. (Currently Amended) The method according to claim 10, wherein the step (e) is ~~performed in such a way as to~~includes changing the transmission state by performing at least one of operations of terminating video transmission, increasing the channel bandwidth, employing an error correction technique, and switching from one CODEC to another CODEC ~~robust against channel errors~~ depending on evaluation results of transmission quality ~~so as to change the transmission state.~~

12. **(Currently Amended)** An apparatus for measuring transmission quality of multimedia data, comprising:

a transmitter for transmitting multimedia data through a forward channel to a receiver ~~in such a way that the transmitter can estimate the multimedia data played at the receiver using information on errors occurring during the multimedia data transmission;~~ and

~~the receiver receiving the multimedia data, detecting errors, which occurs in the channel, from the multimedia data, and transmitting the information on detected errors to the transmitter through a return channel, wherein the transmitter comprises,comprises:~~

an encoding unit for encoding source multimedia data to encoded multimedia data,

~~an estimation~~a received video estimation unit for receiving, on a return channel, transmission error information on received multimedia data, and estimating the received multimedia data played at the receiver using the returned received transmission error information and the transmitted multimedia data, and

an evaluation unit for evaluating the transmission quality of the received ~~data~~ by multimedia data by comparing the estimated received multimedia data with reference data.

13. **(Currently Amended)** The apparatus according to claim 12, wherein the received video estimation unit is configured to receive ~~receiver transmits error information to the transmitter through the return channel only~~ when an error occurs in the forward channel.

14. **(Currently Amended)** The apparatus according to claim 12, further comprising a receiver configured to receive the transmitted multimedia data, the receiver ~~wherein the receiver includes~~including means for compensating errors by applying an error concealment technique to the received multimedia data.

15. **(Currently Amended)** The apparatus according to claim 14, wherein the receiver is configured to transmit~~transmits~~ information on the error concealment technique and the transmission error information to the transmitter through the return channel.

16-17. **(Canceled).**

18. (Original) The apparatus according to claim 12, wherein the reference data is the transmitted multimedia data.

19. **(Currently Amended)** The apparatus according to claim 12, wherein the evaluation unit ~~estimates~~ is configured to evaluate the transmission quality using any one of a full-reference method, a reduced-reference method, and a no reference method.

20. **(Currently Amended)** The apparatus according to claim 12, wherein the transmitter further comprises:

a control unit for selectively maintaining or changing a transmission state of the multimedia data through the forward channel depending ~~on the~~ on an evaluation result of transmission quality.

21. **(Currently Amended)** The apparatus according to claim 20, wherein the control unit is configured to perform ~~performs~~ at least one of ~~operations of~~ terminating video transmission and increasing the channel bandwidth, depending on the evaluation ~~results of transmission quality~~ result.

22. **(Currently Amended)** The apparatus according to claim 20, wherein the encoding unit ~~performs~~ is configured to perform at least one of ~~operations of~~ applying an error correction technique and switching from one CODEC to another CODEC ~~robust against channel errors~~ depending on the evaluation ~~results of transmission quality~~ result.

23. **(Currently Amended)** A method of measuring transmission quality of multimedia data, comprising the steps of:

- (a) transmitting multimedia data through a channel by a transmitter to a receiver;
- (b) extracting ~~transmitting~~ a set of parameters ~~extracted~~ from a video segment of received multimedia data ~~which are~~ affected by transmission errors;

~~(c) occurring during multimedia data transmission~~transmitting the extracted set of parameters to the transmitter through a return channel ~~by a receiver receiving the multimedia data from the transmitter; and~~

(c) measuring, by the transmitter, ~~the transmission~~a transmission quality of the received multimedia data ~~played at the receiver~~ by using the set of parameters and reference data ~~by the transmitter.~~

24. **(Currently Amended)** An apparatus for measuring transmission quality of multimedia data, comprising:

a transmitter for transmitting multimedia data through a channel; and

a receiver for:

receiving the transmitted multimedia data,

detecting transmission errors in the transmitted multimedia data, ~~which occurs in the channel, from the multimedia data, and~~

extracting a set of parameters from a video segment ~~which are~~ affected by the ~~the~~ errors ~~the transmitter~~transmission errors, and

transmitting the set of parameters through a return channel to the transmitter,

wherein the transmitter comprises,

an encoding unit for encoding source multimedia data to encoded multimedia data, and

an evaluation unit for evaluating ~~the transmission~~a transmission quality of the received multimedia data ~~played at the receiver~~ by using the set of parameters and reference data.